

This listing of claims will replace all prior versions, and listings, of claims in the application:

1 Claim 1 (currently amended): A method of processing a  
2 plurality of Z-vectors, each Z-vector including Z  
3 elements, each element including K bits, where Z is a  
4 positive integer greater than 1 and K is a positive  
5 integer, the plurality of Z-vectors corresponding to a  
6 binary codeword, portions of said binary codeword having  
7 a direct mapping relationship to a plurality of  
8 transmission units, said plurality of Z-vectors being  
9 stored in a set of D memory arrays, where D is an integer  
10 greater than zero, each memory array including Z rows of  
11 memory locations, each memory location of a row  
12 corresponding to a different array column, each array  
13 column corresponding to a different one of said plurality  
14 of Z-vectors, each Z-vector identifying one column in  
15 each of said D memory arrays, the method comprising:  
16 generating a series of sets of control information,  
17 each set of control information including:  
18 i) a Z-vector identifier;  
19 ii) a row identifier; and  
20 for at least one generated set of control  
21 information:  
22 reading P times K divided by D bits, where  
23 P is a positive integer, from each column identified by  
24 the Z-vector that is identified by the Z-vector  
25 identifier included in said at least one generated set of  
26 control information;  
27 wherein said method of processing is used to process  
28 received transmission units; and

29        wherein K is an integer greater than zero and is a  
30        number of bits used to represent a soft value  
31        corresponding to one bit of said binary codeword.

1        Claim 2 (original): The method of claim 1,  
2        wherein said method of processing is performed by a  
3        transmission device prior to transmission of said  
4        transmission units;  
5        wherein D is 1; and  
6        wherein K is 1.

1        Claim 3 (original): The method of claim 2, further  
2        comprising:  
3        for said at least one generated set of control  
4        information:  
5        generating from said P bits read from memory, a  
6        portion of the transmission unit identified by the  
7        transmission unit identifier included in said at  
8        least one generated set of control information.

1        Claim 4 (currently amended): ~~The method of claim 3,~~ A method  
2        of processing a plurality of Z-vectors, each Z-vector  
3        including Z elements, each element including K bits,  
4        where Z is a positive integer greater than 1 and K is a  
5        positive integer, the plurality of Z-vectors  
6        corresponding to a binary codeword, portions of said  
7        binary codeword having a direct mapping relationship to a  
8        plurality of transmission units, said plurality of Z-  
9        vectors being stored in a set of D memory arrays, where D  
10       is an integer greater than zero, each memory array  
11       including Z rows of memory locations, each memory  
12       location of a row corresponding to a different array

13 column, each array column corresponding to a different  
14 one of said plurality of Z-vectors, each Z-vector  
15 identifying one column in each of said D memory arrays,  
16 the method comprising:  
17 generating a series of sets of control information,  
18 each set of control information including:  
19 i) a Z-vector identifier;  
20 ii) a row identifier; and  
21 for at least one generated set of control  
22 information:  
23 reading P times K divided by D bits, where  
24 P is a positive integer, from each column identified by  
25 the Z-vector that is identified by the Z-vector  
26 identifier included in said at least one generated set of  
27 control information;  
28 wherein said method of processing is performed  
29 by a transmission device prior to transmission of said  
30 transmission units;  
31 wherein D is 1;  
32 wherein K is 1;  
33 for said at least one generated set of control  
34 information, generating from said P bits read from  
35 memory, a portion of the transmission unit identified by  
36 the transmission unit identifier included in said at  
37 least one generated set of control information;  
38 wherein said plurality of Z-vectors includes n of  
39 said plurality of Z-vectors, where n is a positive  
40 integer greater than 1; and  
41 wherein generating a series of sets of control  
42 information further includes:  
43 incrementing a Z-vector identifier value by n  
44 divided by M, where M is the number of portions of

45 the transmission unit having a direct mapping  
46 relationship to a portion of the binary codeword  
47 said portion of the binary codeword including M  
48 times P bits.

1 Claim 5 (original): The method of claim 4,  
2 wherein each portion of a transmission unit is a  
3 symbol; and  
4 wherein the transmission unit is a dwell.

1 Claim 6 (currently amended): The method of claim 3,  
2 wherein generating a series of sets of control  
3 information further includes:  
4 incrementing the z-vector identifier value M times;  
5 after incrementing the z-vector value M times:  
6 i) resetting the Z z-vector identifier value to  
7 the z-vector identifier value existing at the  
8 start of said incrementing; and  
9 ii) incrementing a row identifier value by P.

1 Claim 7 (previously presented): The method of claim 6,  
2 wherein generating a series of sets of control  
3 information further includes:  
4 after incrementing the row identifier value Z  
5 divided by P times, where Z divided by P times is an  
6 integer,  
7 setting the row identifier value to zero; and  
8 incrementing the Z-vector identifier value by a  
9 preselected positive integer value.

1 Claim 8 (original): The method of claim 7, wherein said  
2 preselected positive integer value is one.

1 Claim 9 (original): The method of claim 2, wherein said  
2 binary codeword is a low density parity check codeword.

1 Claim 10 (canceled):

1 Claim 11 (original): The method of claim 10, where D is  
2 equal to K or 1.

1 Claim 12 (original): The method of claim 11, further  
2 comprising:

3 for said at least one generated set of control  
4 information:

5 supplying the P bits read from memory to a  
6 demodulator.

1 Claim 13 (previously presented): The method of claim 10,  
2 further comprising:

3 for said at least one generated set of control  
4 information:

5 generating, from said P bits read from memory,  
6 a portion of the transmission unit identified by the  
7 transmission unit identifier included in said each  
8 generated set of control information.

1 Claim 14 (previously presented): The method of claim 13,  
2 wherein said plurality of Z-vectors includes n of  
3 said Z-vectors, where n is a positive integer greater  
4 than 1; and

5 wherein generating a series of sets of control  
6 information further includes:

7           incrementing a Z-vector identifier value  $n$   
8           divided by  $M$ , where  $M$  is the number of portions of  
9           the transmission unit having a mapping relationship  
10          to a portion of the binary codeword said portion of  
11          the binary codeword including  $M$  times  $P$  bits.

1          Claim 15 (previously presented): The method of claim 13,  
2          wherein generating a series of sets of control  
3          information further includes:

4           incrementing a row identifier value by  $P$   
5           incrementing the Z-vector identifier value  $M$  times;  
6           after incrementing the Z-vector value  $M$  times:  
7           i) resetting the Z-vector identifier value to  
8           the Z-vector identifier value existing at the  
9           start of said incrementing; and  
10          ii) incrementing a row identifier value by  $P$ .

1          Claim 16 (previously presented): The method of claim 15,  
2          wherein generating a series of sets of control  
3          information further includes:

4           after incrementing the row identifier value  $Z$   
5           divided by  $P$  times, where  $Z$  divided by  $P$  times is an  
6           integer,  
7           setting the row identifier value to zero; and  
8           incrementing the Z-vector identifier value by a  
9           preselected positive integer value.

1          Claim 17 (original): The method of claim 16, wherein  
2          said preselected positive integer value is one.

1 Claim 18 (currently amended): The method of claim 1 ~~10~~,  
2 wherein said binary codeword is a low density parity  
3 check codeword.

1 Claim 19 (currently amended): An apparatus for  
2 processing a plurality of Z-vectors, each Z vector  
3 including Z elements, each element including K bits,  
4 where Z is a positive integer greater than 1 and K is a  
5 positive integer, the plurality of Z vectors  
6 corresponding to a binary codeword, portions of said  
7 binary codeword having a direct mapping relationship to a  
8 plurality of transmission units, said apparatus  
9 comprising:  
10 memory including a set of D memory arrays for  
11 storing said plurality of Z-vectors, where D is an  
12 integer greater than zero, each memory array including Z  
13 rows of memory locations, each memory location of a row  
14 corresponding to a different array column, each array  
15 column corresponding to a different one of said plurality  
16 of Z vectors, each Z-vector identifying one column in  
17 each of said D memory arrays;  
18 memory access control module for generating a series  
19 of sets of control information, each set of control  
20 information including:  
21 i) a Z-vector identifier;  
22 ii) a row identifier; and  
23 means for reading P times K divided by D bits,  
24 from said memory, where P is a positive integer greater  
25 than zero, from each column identified by the Z-vector  
26 that is identified by the Z-vector identifier included in  
27 at least one generated set of control information; and

28        wherein K is an integer greater than zero and is a  
29        number of bits used to represent a soft value  
30        corresponding to one bit of said binary codeword.

1        Claim 20 (original): The method of claim 1,  
2                wherein D is 1; and  
3                wherein K is 1.

1        Claim 21 (previously presented): The method of claim 19,  
2        wherein said memory access control modules includes:  
3                a first counter for generating said Z-vector  
4        identifier; and  
5                a second counter for generating said row identifier.

1        Claim 22 (currently amended): A machine readable medium  
2        comprising machine executable instructions for  
3        controlling a computer device to process a plurality of  
4        Z-vectors, each Z-vector including Z elements, each  
5        element including K bits, where Z is a positive integer  
6        greater than 1 and K is a positive integer, the plurality  
7        of Z-vectors corresponding to a binary codeword, portions  
8        of said binary codeword having a direct mapping  
9        relationship to a plurality of transmission units, said  
10       machine executable instructions including instructions  
11       used to control the computer device to:  
12               generate a series of sets of control information,  
13       each set of control information including:  
14               i) a Z-vector identifier; and  
15               ii) a row identifier; and  
16               for at least one generated set of control  
17       information:



18 read P times K divided by D bits, where P is a  
19 positive integer greater than zero, from each column  
20 identified by the Z-vector that is identified by the Z-  
21 vector identifier included in said at least one generated  
22 set of control information; and  
23 wherein K is an integer greater than zero and  
24 is a number of bits used to represent a soft value  
25 corresponding to one bit of said binary codeword.